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| <hr/> (54) Title: SYSTEM FOR ACCESSING AND TRANSFERRING INFORMATION FROM A PRIVATE COMPUTER | | |
| (57) Abstract | | |
| The system includes a network element associated with a multiple access wireless communication system (10) and a server (20) in communication with the network element. The system includes an information delivery agent (50) which is responsive to the server, the information delivery agent configured to communicate via hyper text transfer protocol. The system further includes an internet interface (46) associated with the private computing system. The internet interface is responsive to the information delivery agent. The network element receives the information from the private computing system via the internet interface, the information delivery agent, and the server. | | |
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SYSTEM FOR ACCESSING AND TRANSFERRING INFORMATION FROM A
PRIVATE COMPUTER

FIELD OF THE INVENTION

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The present invention relates generally to communication systems and, more particularly, to a system and method for accessing and transferring information from a private computer.

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BACKGROUND OF THE INVENTION

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Computers are used to retrieve and communicate information such as electronic mail, electronic planner scheduling data, world wide web documents, and news articles. Advances in speech processing techniques such as text-to-speech and automatic speech recognition now provide the technology necessary for computer users to retrieve and communicate information using a voice interface provided by a plain old telephone system (POTS) landline or a wireless communication system. The information which communication system users might want to access in their computing environments from their telephone, however, is not readily available to landline or wireless telephone service providers. Private computing system architecture may include security authentication network elements, such as firewalls, and are commonly used to protect information from being accessed by outside sources.

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Therefore, a need exists for a system and method for accessing and transferring information from a private computing system using portable wireless devices in a manner which is ubiquitous to the wireless network operator.

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SUMMARY OF THE INVENTION

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According to an aspect of the present invention, the foregoing need is addressed by a system for accessing information from a private computer system. Such a system includes a network element

associated with a multiple access wireless communication system and a server in communication with the network element. The system includes an information delivery agent which is responsive to the server, the information delivery agent configured to communicate via 5 hyper text transfer protocol. The system further includes an internet interface associated with the private computing system. The internet interface is responsive to the information delivery agent. The network element receives the information from the private computing system via the internet interface, the information delivery agent, and the 10 server.

Advantages of the present invention will become readily apparent to those skilled in the art from the following description of the preferred embodiment(s) of the invention which have been shown and described by way of illustration. As will be realized, the invention 15 is capable of other and different embodiments, and its details are capable of modification in various respects. Accordingly, the drawings and descriptions are to be regarded as illustrative in nature and not as restrictive.

20 BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a system for accessing information from a private computer system according to a preferred embodiment of the present invention.

25 FIG. 2 is a block diagram of the multiple access wireless communication system shown in FIG. 1.

FIG. 3 is a flow diagram of a method for transferring information from a private computer to the multiple access wireless communication system depicted in FIG. 1, according to a preferred 30 embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the drawings, wherein like numerals designate like components, FIG. 1, a network 100, is illustrated. Network 100 includes a multiple access wireless communication system 10 (discussed below in FIG.2), for example a cellular communication system, a personal communication system, a paging communication system, a trunked communication system or a satellite system, in communication with a server 20 and a public switched telephone network (PSTN) 15, an internet network 30 coupled to server 20, and a private computing system 40.

Server 20 may be a general purpose computer configured with hyper text transfer protocol (HTTP) and/or simple mail transfer protocol SMTP, and is coupled to an internet network 30. Linking between server 20 and internet network 30 may occur by way of a protocol such as transmission control protocol/internet protocol, (TCP/IP). Internet network 30 provides access to many computer networks joined together over high-speed data links, the joined networks commonly referred to as the internet. Internet network 30 is, in turn, coupled to a private computing system 40 via TPC/IP. An information delivery agent 50 is in communication with internet network 30 and private computing system 40. Information delivery agent 50 may reside in and is responsive to server 20, and is configured to communicate via hyper text transfer protocol.

Private computing system 40 includes at least one computer 42, for example a personal workstation, such computers being well known and widely available, in communication with internet network 30 via an internet interface 46 commonly referred to as an internet browser or a web browser such as Netscape Navigator™ web browser or Microsoft's Internet Explorer™ web browser, although any suitable HTTP client or SMTP client may be used. Private computing system 40 may be a personal computer, a corporate intra-network, a wide area network, a local area network, or any other suitable computer network whose information 44, for example electronic mail messages or any

other information, may or may not be protected by a security authentication method such as a firewall.

Information delivery agent 50 may be a software module, resident on server 20 or installed on private computing system 40.

5 Upon request from private computer 42 and/or internet interface 46, information delivery agent 50 is capable of being downloaded and executed by private computer 42 running internet interface 46. Information delivery agent 50 functions to run a specific task in private computing system 40 and may be implemented in a variety of ways

10 using well-known programming techniques, including a Netscape™ plug-in, a Java™ applet or an ActiveX™ component, all well known in the art, or by another appropriate method. Information delivery agent 50 may be downloaded and executed by a Web browser resident in private computing system 40 via an HTTP request to a remote world-wide web HTTP server such as server 20. For example, a user

15 (not shown) of private computing system 40 may elect to gain entry to a web site on server 20 via an HTTP request through internet network 30, in order to download information delivery agent 50.

Private computing system 40 may be protected by an "internet firewall" (not shown), which may be enlisted to make HTTP requests to outside computer systems on behalf of internet interface 46. The internet firewall provides a single point of entry where a defense may be implemented, supervising access to resources on the internet from within private computing system 40, as well as providing controlled access to private computing system 40 from the internet.

As shown in FIG. 2, multiple access wireless communication system 10 includes communication subsystem 60 comprised of network elements including a home location register (HLR) 64, a mobile switching center (MSC) 62, and a base station system (BSS) 66. As shown, BSS 66 is in communication with mobile communication unit 68. Each of the elements 64, 62 and 66 is commercially available from Motorola, Inc. An intelligent peripheral (IP) 80 may provide selectable information interactions, such as converting a text signal into a speech signal, or vice versa, within multiple access wireless communication system 10. A service node, commercially available from Motorola, Inc.,

may also be used in place of, or in addition to, intelligent peripheral 80. A service node or an intelligent peripheral may include one or more of the following, among other things: a programmable switch 82, such switches being well-known and widely available, and a computer 84 which includes a voice processor 86 for speech processing, for example text-to-speech conversion.

Communication subsystem 60 communicates to a public switched telephone network (PSTN) 15 through mobile switching center 62, which may be an EMX™ 2500, commercially available from Motorola, Inc., or another suitable type of switching center. MSC 62 is in communication with BSS 66 which includes at least one base station controller (not shown) and a plurality of transceivers (not shown).

Home location register (HLR) 64 may be in communication with both MSC 62 and intelligent peripheral 80, or with other network elements. HLR 64 provides a database of mobile communication unit users as well as information related to features and services furnished by multiple access wireless communication system 10. For example, a user of mobile communication unit 68 may be entitled to a feature provided by multiple access wireless communication system 10 such as text to speech conversion enabled by IP 80.

Multiple access wireless communication between base station system 66 and mobile communication unit 68 preferably occurs over radio frequency (RF) channels which provide physical paths over which analog or digital communication such as voice, data and video are transmitted. A communication system using digital channelization which is suitable for use with various embodiments of the present invention is described in detail in a direct sequence code division multiple access (DS-CDMA) cellular communication system, such as set forth in the Telecommunications Industry Association Interim Standard 95A (TIA/EIA IS-95A) herein after referred to as IS-95A and incorporated herein by reference.

FIG. 3 illustrates a method for accessing and transferring information from private computer 42 to a multiple access wireless communication system 10. The method preferably operates in network 100, as illustrated in FIGs. 1 and 2. That is, network 100 includes a

private computing system 40 which can be further separated into a private computer 42 or any number of computers configured and/or communicating in any manner, equipped with an internet interface 46 such as a web browser. Private computing system 40 is linked to an 5 internet network 30 through web browser 46. Also linked to internet network 30 is a HTTP server 20 which contains task specific software which is downloadable to, and executable by, web browser 46 in the private computing network 40. The task specific software may be referred to as an information delivery agent 50. Information delivery 10 agent 50, when executed, may be used to access information 44 such as an electronic mail message or any other type of information from private computer 42. Multiple access wireless communication system 10 is coupled to HTTP server 20. Multiple access wireless communication system 10 includes a service node 80 and a 15 communication subsystem 60. Communication subsystem 60 includes a mobile switching center 62, a home location register 64, a base station system 66, and a mobile communication unit 86 responsive to mobile switching center 62 via base station system 66. Service node 80 is linked to, and in communication with, mobile switching center 62. 20 The method for accessing and transferring information 44 from private computer 42 to multiple access wireless communication system 10 starts at block 301 where information delivery agent 50 is downloaded via Web browser 46, from HTTP server 20 to private computer 42. At block 305, information delivery agent 50 is executed, such that 25 collection and forwarding of an electronic mail message 44 from private computing system 40, will be performed. Next, information delivery agent 50 posts electronic mail message 44 from private computer 42 to HTTP server 20, at block 310. At block 320, HTTP server 20 directs electronic mail message 44 to service node 80. Next, service 30 node 80 converts electronic mail message 44 to a voice message at block 330. At block 340, service node 44 delivers the voice message to mobile switching center 62. At block 350, mobile switching center 62 relays the voice message to mobile communication unit 68 via base station system 66.

A user of mobile communication unit 68 may then exercise a number of standard options well known in telephony, for example, listening to, saving, forwarding and/or deleting the electronic mail. Upon returning to the private computing system 40, the user of mobile 5 communication unit 68 may elect to update the private computer 42 with a summary of electronic mail activity, such as activity resulting from block 350, as well as disable information delivery agent 50.

Mobile switching center 62 may also elect to hold the message in a voicemail queue for future delivery, or it may elect to deliver the 10 message in a text format, in which case, a suitable feature would have been invoked in service node 80.

The problem of inaccessibility to information in a private computing system may be addressed by agreements made between internet service providers and communication system operators. Such 15 agreements may enable an individual with a web browser in their private computing system, and an account with a communication system provider, to access and transfer their private computer system information. The agreement may require the communication system operator to employ software compatible with a Web browser, the 20 software specifically tasked to forward electronic mail through an internet network, to a communication system provider, for receipt by a communication system user.

There are numerous advantages to network 10 and the method described herein. For example, the method obviates the need for 25 individual agreements between internet service providers and wireless communication system operators. Any individual having an account with a wireless cellular system operator and access to the internet may be a potential for a service utilizing this method or system.

It will be apparent that other forms of the invention, and 30 embodiments other than the specific embodiments described above, may be devised without departing from the spirit and scope of the appended claims and their equivalents, and therefore it is intended that the scope of this invention will only be governed by the following claims and their equivalents.

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CLAIMS

What we claim is:

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1. A system for accessing information from a private computer comprising:

10 a network element associated with a multiple access wireless communication system;

a server in communication with the network element;

15 an information delivery agent responsive to the server, the information delivery agent configured to communicate via hyper text transfer protocol; and

an internet interface associated with the private computer, the internet interface responsive to the information delivery agent,

20 the network element receiving the information from the private computer via the internet interface, the information delivery agent, and the server.

25 2. The method according to claim 1, wherein the multiple access wireless communication system is selected from the group consisting of: a cellular communication system, a personal communication system, a paging communication system, a trunked communication system and a satellite system.

30 3. The method according to claim 1, wherein the server comprises one of an HTTP server and an SMTP server.

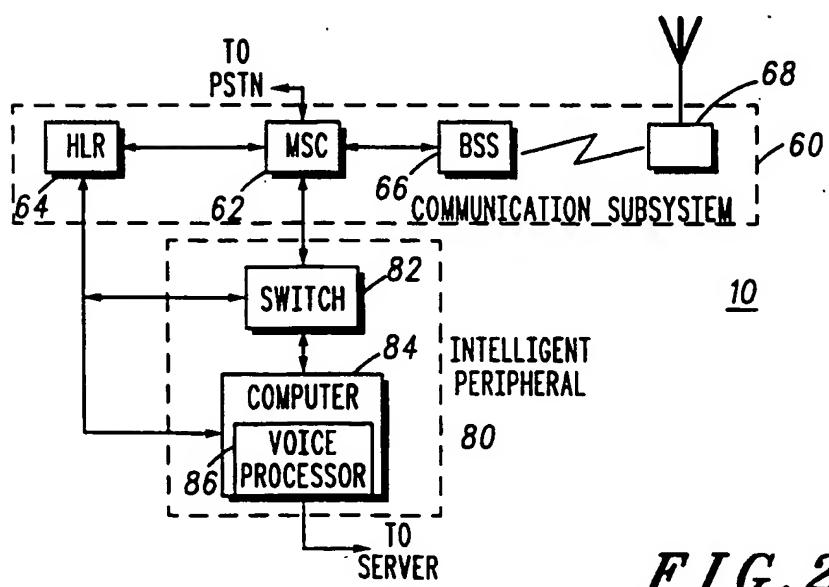
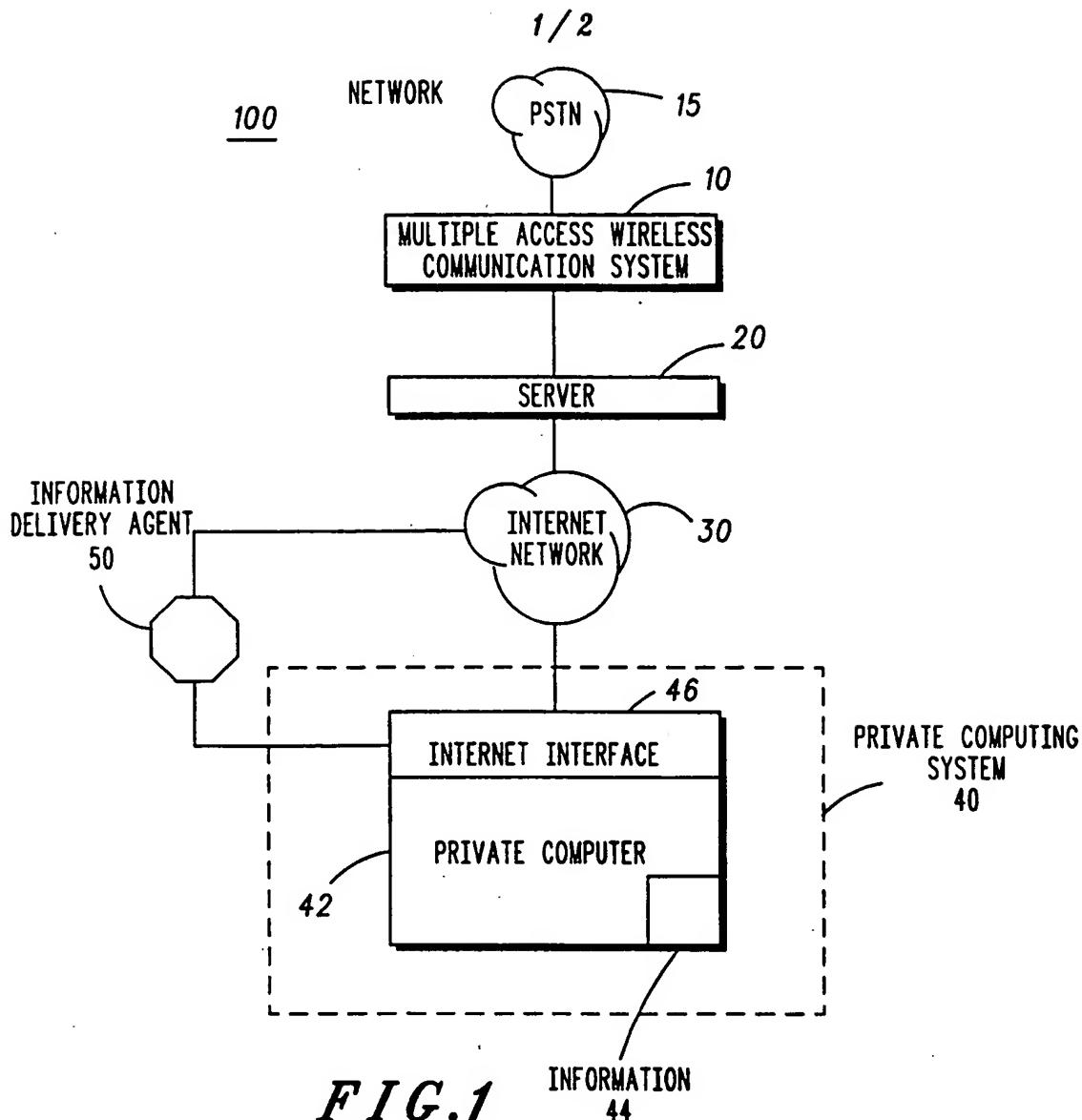
4. The method according to claim 1, wherein the network element comprises an intelligent peripheral.

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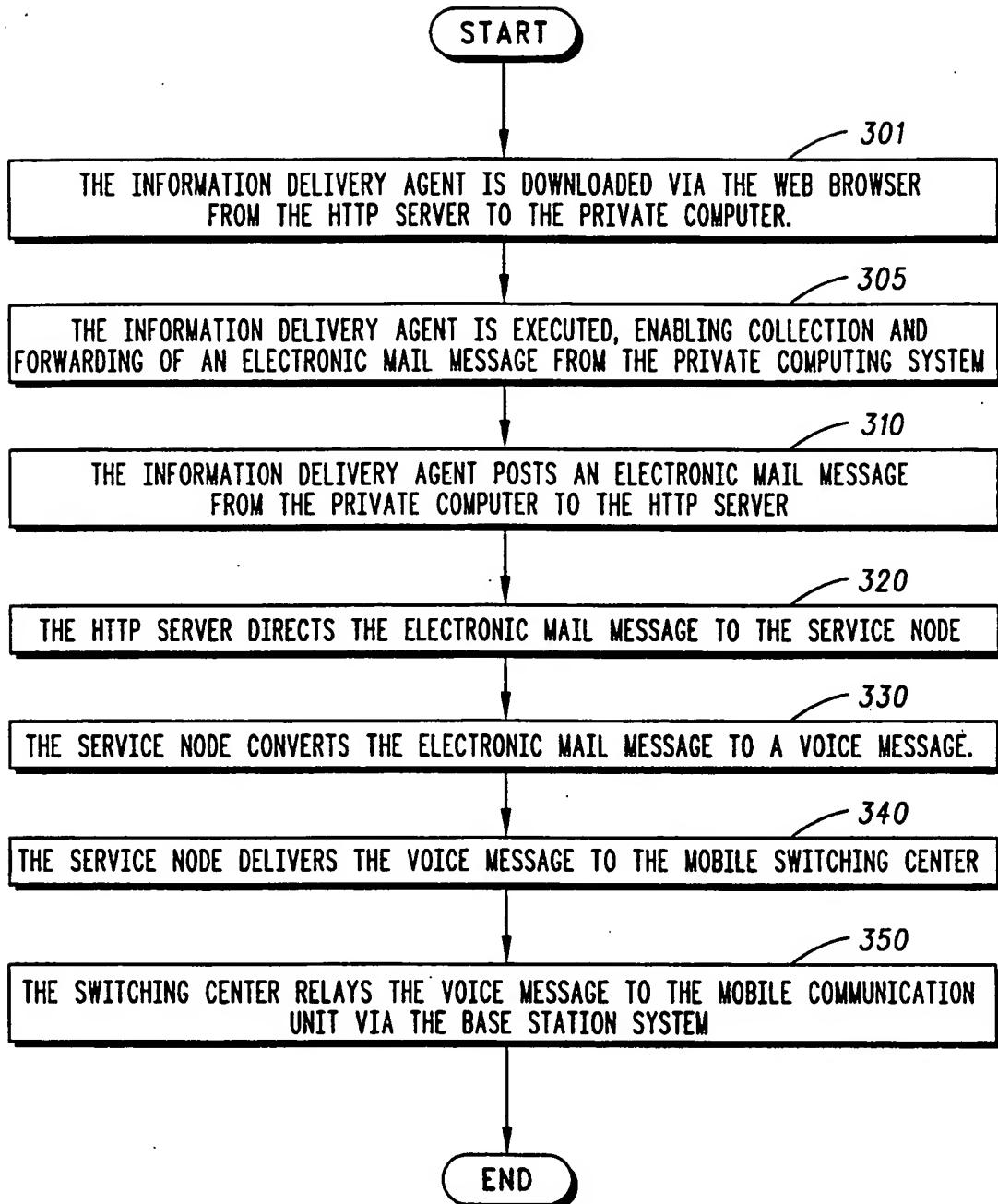
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5. The method according to claim 1 wherein the internet interface comprises an internet browser application.
6. The method according to claim 1, wherein the information delivery agent posts the information from the private computer to the server.
7. The method according to claim 6, wherein the server directs the information to the network element.
- 10 8. The method according to claim 1, wherein the information delivery agent comprises software which is downloadable and executable by the internet interface.
- 15 9. The method according to claim 8, wherein the information delivery agent is resident on the server.
10. The method according to claim 8, wherein the information delivery agent is resident on the private computer.

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**FIG. 3**

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US98/00913

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 13/00
 US CL :395/200.32, 200.33, 200.36, 200.47, 200.48, 200.49, 200.59, 200.79, 680
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/200.32, 200.33, 200.36, 200.47, 200.48, 200.49, 200.59, 200.79, 680

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, DIALOG
 internet, browser, wireless, cellular, satellite, mobile

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| A,P | US 5,673,322 A (PEPE et al) 30 September 1997, Fig 2, col 6, lines 56-67, col 7, lines 15-25. | 1-10 |
| A,P | US 5,675,507 A (BOBO, II) 07 October 1997, Fig 1, the abstract, col 6, lines 19-22, lines 44-45, col 7, lines 17-27, col 16, lines 24-35, col 17, lines 6-35, col 20, lines 31-35. | 1-10 |
| A,E | US 5,732,074 A (SPAUR et al) 24 March 1998, Fig 2, the abstract, col 1, lines 5-8, col 2, lines 24-61, col 3, lines 13-29, col 4, lines 8-26, col 5, lines 41-67, col 6, lines 1-12, col 7, lines 13-54, col 8, lines 40-58, col 9, lines 46-62, col 11, lines 32-65, col 12, lines 34-67, col 13, lines 1-8. | 1-10 |

Further documents are listed in the continuation of Box C.

See patent family annex.

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